UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,323	12/28/2001	Marcia Reid Martin	2001-057-SFT	8893

7590 04/06/2007	EXAMINER
STORAGE TECHNOLOGY CORPORATION One Storage Tek Drive Louisville, CO 80028-4309	PARTHASARATHY, PRAMILA

ART UNIT	PAPER NUMBER
2136	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/034,323	MARTIN ET AL.
	Examiner	Art Unit	
	Pramila Parthasarathy	2136	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>18 January 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-40</u> is/are pending in the application.

    4a) Of the above claim(s) <u>1-27</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>28-40</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>1/18/2007</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the communication filed on January 18, 2007.

Claims 28 – 40 are pending.

Information Disclosure Statement

2.   An initialed copy of IDS that was filed on January 18, 2007 is attached to this

office action.

Response to Arguments

3.   Applicant's remarks filed on January 18, 2007 have been fully considered.

Applicant argues that prior art (Brunnett et al. U.S. Patent Number 6,792,517 in

view of Sweet et al. U.S. Patent Number 6,058,372) do not disclose "checking previous

mirror-in-the-middle in the sequence", "checking a copy of data to see if it satisfies at

least one constraint" and further argues that Sweet has nothing whatsoever to do with

mirrors-in-the-middle. These arguments are not persuasive.

Examiner directs to instant specification page 34 for Applicant's definition for

amended limitation "**consistency** constraint" (emphasis added), "monitoring a database

for violation of consistency constraint (such as values falling out of specified ranges or

spurious duplicate or ambiguous data, for example), lines 7 – 11. Brunnett discloses, "if

data is retrieved from backup portion (storage), because the original data area was

damaged (ambiguous data), the backup area always accessible to the host.

Furthermore, Sweet was combined with Brunnett to disclose "checking previous mirrors-in-the-middle in the sequence".

Therefore, the examiner respectfully asserts that the cited prior art does teach or suggest the subject matter broadly recited in independent claims. The dependent claims are rejected at least by virtue of their dependency on the dependent claims and by other reason set forth in this office action. Accordingly, the rejection for the pending claims is respectfully maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4.   Claims 28 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunnett et al. (U.S. Patent Number 6,792,517) in view of Sweet et al. (U.S. Patent Number 6,058,372).

5.   Regarding Claim 28, Brunnett teaches creating a sequence of mirrors-in-the-middle, each mirror-in-the-middle including a copy of data stored on the primary storage system at a fixed point in time (Brunnett Summary and Column 3 lines 35 – 53);

checking a first mirror-in-the-middle of the sequence of mirrors-in-the-middle to

see if a copy of data stored on the first mirror-in-the-middle satisfies at least one

constraint (Brunnett Summary and Column 3 lines 35 – 53); and

if not, repeating checking previous mirrors-in-the-middle in the sequence of

mirrors-in-the-middle until one of the checked previous mirrors-in-the-middle include an

uncorrupted copy of data satisfying the at least one constraint (Brunnett Summary and

Column 3 lines 35 – 53).

Brunnett discloses mirroring the backup data to a firmware (a copy of data stored

on the firmware) wherein if the data is damaged, the firmware can either copy data back

to the primary memory or the backup (secondary) memory can copy data back to the

primary memory. Brunnett further discloses that even when the primary memory is

damaged (corrupted/virus data), a complete mirror image of the primary disk will be

maintained in the backup and firmware portions (Brunnett Summary and Column 5 lines

13 – 47). Brunnett does not explicitly disclose if a copy of data stored in the first mirror

does not satisfies at least one constraint, repeating checking previous mirrors-in-the-

middle (backup storage, firmware) until one of the checked previous mirror-in-the-

middle include an uncorrupted copy of data satisfying the at least one constraint.

However, Sweet teaches if a copy of data stored in the first mirror does not satisfies at

least one constraint, repeating checking previous mirrors-in-the-middle (backup storage,

firmware) until one of the checked previous mirror-in-the-middle include an uncorrupted

copy of data satisfying the at least one constraint (Sweet Column 5 line 30 – Column 6

line 52).

Motivation to combine the invention of Sweet with Brunnett's teachings comes

from the need for secure and protect the data from any types of corruption. Brunnett

themselves provide a discussion of the need for protecting the data in both primary and

backup storage devices but are silent as to the specific details of the repeated checking

involved. It would have been obvious to one of ordinary skill in the art to coming Sweet

with Brunnett because security and protection is needed for both backup and primary

portions of memory and Sweet provides some details of how to protect the data and

secure backup storage devices.

Furthermore, the applicant has not explicitly claimed what that constraint criteria

will be and that the constraint is heart of the invention. If the applicant has the special

constraint in the invention then the examiner suggests amending the claims to explicitly

recite such a constraint.

A recitation directed to the manner in which a claimed apparatus is intended to

be used does not distinguish the claimed apparatus from the prior art if prior art has the

capability to do so perform (See MPEP 2114 and Ex Parte Masham, 2 USPQ2d 1647

(1987)). The prior art is replete with references disclosing backing up data that will be

used to copy back to primary location (See PTO 892).

6.   Regarding Claim 35, Brunnett teaches a random-access storage unit storing a

sequence of mirrors-in-the-middle, each mirror-in-the-middle including a copy of data

stored on the primary storage system at a fixed point in time (Brunnett Summary and

Column 3 lines 35 – 53); and

control logic in communication with the random-access storage unit, the control

logic operating to checking a first mirror-in-the-middle of the sequence of mirrors-in-the-

middle to see if a copy of data stored on the first mirror-in-the-middle satisfies at least

one constraint, and if not, repeating checking previous mirrors-in-the-middle in the

sequence of mirrors-in-the-middle until one of the checked previous mirrors-in-the-

middle include an uncorrupted copy of data satisfying the at least one constraint

(Brunnett Summary and Column 3 lines 35 – 53).

Brunnett discloses mirroring the backup data to a firmware (a copy of data stored

on the firmware) wherein if the data is damaged, the firmware can either copy data back

to the primary memory or the backup (secondary) memory can copy data back to the

primary memory. Brunnett further discloses that even when the primary memory is

damaged (corrupted/virus data), a complete mirror image of the primary disk will be

maintained in the backup and firmware portions (Brunnett Summary and Column 5 lines

13 – 47). Brunnett does not explicitly disclose if a copy of data stored in the first mirror

does not satisfies at least one constraint, repeating checking previous mirrors-in-the-

middle (backup storage, firmware) until one of the checked previous mirror-in-the-

middle include an uncorrupted copy of data satisfying the at least one constraint.

However, Sweet teaches if a copy of data stored in the first mirror does not satisfies at

least one constraint, repeating checking previous mirrors-in-the-middle (backup storage,

firmware) until one of the checked previous mirror-in-the-middle include an uncorrupted

copy of data satisfying the at least one constraint (Sweet Column 5 line 30 – Column 6 line 52).

Motivation to combine the invention of Sweet with Brunnett's teachings comes from the need for secure and protect the data from any types of corruption. Brunnett themselves provide a discussion of the need for protecting the data in both primary and backup storage devices but are silent as to the specific details of the repeated checking involved. It would have been obvious to one of ordinary skill in the art to coming Sweet with Brunnett because security and protection is needed for both backup and primary portions of memory and Sweet provides some details of how to protect the data and secure backup storage devices.

Furthermore, the applicant has not explicitly claimed what that constraint criteria will be and that the constraint is heart of the invention. If the applicant has the special constraint in the invention then the examiner suggests amending the claims to explicitly recite such a constraint.

A recitation directed to the manner in which a claimed apparatus is intended to be used does not distinguish the claimed apparatus from the prior art if prior art has the capability to do so perform (See MPEP 2114 and Ex Parte Masham, 2 USPQ2d 1647 (1987)). The prior art is replete with references disclosing backing up data that will be used to copy back to primary location (See PTO 892).

7.   Claims 29 and 36 are rejected as applied above in rejecting claims 28 and 35.

Furthermore, Brunnett teaches restoring the uncorrupted copy of data to the primary

storage system (Summary; Column 3 lines 35 – 53 and Column 4 line 58 – Column 7

line 4).

8.   Claims 30 and 37 are rejected as applied above in rejecting claims 28 and 35.

Furthermore, Brunnett teaches checking comprises scanning for viruses (Summary;

Column 3 lines 35 – 53 and Column 4 line 58 – Column 7 line 4).

9.   Claims 31 and 38 are rejected as applied above in rejecting claims 28 and 35.

Furthermore, Brunnett teaches monitoring a database for consistency of constraints

(Summary; Column 3 lines 35 – 53 and Column 4 line 58 – Column 7 line 4).

10.   Claim 32 is rejected as applied above in rejecting claim 28. Furthermore,

Brunnett teaches storing the sequence of mirrors-in-the-middle using a data

management appliance (Summary; Column 3 lines 35 – 53 and Column 4 line 58 –

Column 7 line 4).

11.   Claims 33 and 39 are rejected as applied above in rejecting claims 28 and 35.

Furthermore, Brunnett teaches restoring the copy of data stored on the first mirror-in-

the-middle to the primary storage system if the copy of data stored on the first mirror-in-

the-middle satisfies the at least one constraint (Summary; Column 3 lines 35 – 53 and

Column 4 line 58 – Column 7 line 4).

12.   Claims 34 and 40 are rejected as applied above in rejecting claims 28 and 35.

Furthermore, Brunnett teaches checking a copy of data stored on the first mirror-in-the-

middle satisfies the at least one constraint, checking a copy of data stored on at least

one additional mirror-in-the-middle later in the sequence of mirrors-in-the-middle than

the first mirror-in-the-middle satisfies the at least one constraint (Summary; Column 3

lines 35 – 53 and Column 4 line 58 – Column 7 line 4).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time
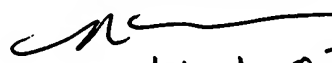
policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Pramila Parthasarathy whose telephone number is 571-

272-3866. The examiner can normally be reached on 8:00a.m. To 5:00p.m.. If attempts

to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Nasser Moazzami can be reached on 571-232-4195. Any inquiry of a general nature or

relating to the status of this application or proceeding should be directed to the

receptionist whose telephone number is 703-305-3900.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR only. For more

information about the PAIR system, contact the Electronic Business Center (EBC) at

866-217-9197 (toll-free).

Pramila Parthasarathy
March 31, 2007.

NASSER MOAZZAMI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

4/1/07.